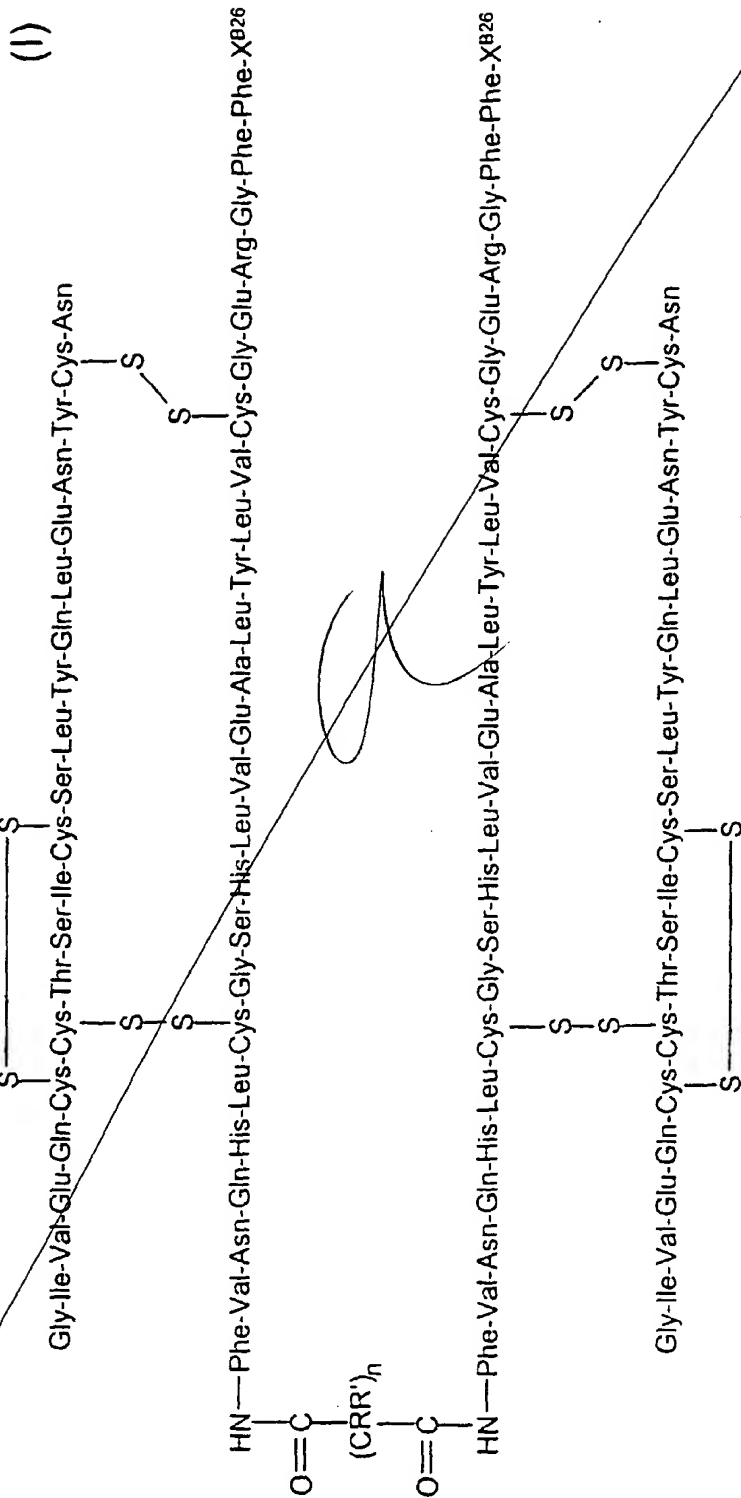


## Patent claims:

- 5
1. An insulin analogue consisting of two identical or different insulin monomers covalently linked together via a bridge, where the insulin monomers are selected from a group comprising human insulin, animal insulins and derivatives of human insulin and animal insulins, and where at least one derivative of human insulin or of an animal insulin is present in an insulin analogue; and physiologically acceptable salts thereof.
- 10
2. An insulin analogue as claimed in claim 1, characterized by formula I.

T.0934766.08201

101960  
101961  
101962  
101963  
101964  
101965  
101966  
101967  
101968  
101969  
101970  
101971  
101972  
101973  
101974  
101975  
101976  
101977  
101978  
101979  
101980  
101981  
101982  
101983  
101984  
101985  
101986  
101987  
101988  
101989  
101990  
101991  
101992  
101993  
101994  
101995  
101996  
101997  
101998  
101999  
102000



where

X is, independently of one another, a branched or unbranched C<sub>1</sub>-C<sub>10</sub>-alkyl group, mono- or polysubstituted aryl group, C<sub>1</sub>-C<sub>10</sub>-alkyl group, mono- or polysubstituted or unsubstituted O-aryl group, an amino acid or a derivative thereof, or a group of the formula NRR';

R,R' is H, NH<sub>2</sub>, a branched or unbranched C<sub>1</sub>-C<sub>10</sub>-alkyl radical or mono- or polysubstituted or unsubstituted aryl group;

n is 0, 1, 2, .....16.

3. An insulin analogue as claimed in claim 2, where X is an amino acid in which the carboxylic acid group is amidated.

4. An insulin analogue as claimed in claim 3, where X is the amino acid sarcosine.

5. An insulin analogue as claimed in one or more of claims 2 or 3, where the X residues in the two B chains are different from one another.

6. An insulin analogue as claimed in one or more of claims 2 or 3, where X is an amino group.

7. B1,B1-Sub-[Sar<sup>B26</sup>]-des-(B27-B30)-insulin-B26-amide insulin dimer.

8. B1,B1-Sub-[D-Ala<sup>B26</sup>]-des-(B27-B30)-insulin-B26-amide insulin dimer.

9. B1,B1-Sub-[Glu<sup>B26</sup>]-des-(B27-B30)-insulin-B26-amide insulin dimer.

10. A pharmaceutical preparation which comprises an insulin analogue as claimed in one or more of claims 1-9 and additions selected from the group comprising zinc salts, phenol, m-cresol, glycerol and buffer substances.

11. A process for producing a pharmaceutical for the treatment of

0093476-08001

diabetes comprising an insulin analogue as claimed in one or more of claims 1-9.

5 12. An insulin analogue as claimed in one or more of claims 1-9 for use as pharmaceutical.

13. A diagnostic kit comprising one or more insulin analogues as claimed in one or more of claims 1-9.

10 14. A process for preparing the insulin analogues as claimed in one or more of claims 1-9, where

(a) the monomeric insulin analogues are obtained by enzyme-catalyzed semisynthesis or by methods of genetic manipulation,

15 (b) the monomeric insulin analogues from step (a) are optionally partially protected by protective groups;

(c) the protected monomeric insulin analogues from step (b) and/or the monomeric insulin analogues from step (a) are reacted with a preactivated dicarboxylic acid, and

20 (d) the insulin analogues obtained in step (c) are isolated from the reaction mixture.

09934766-083300

ADD  
A2